CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION

California Debt and Investment Advisory Commission

Ongoing Debt Administration Seminar
May 19, 2006

The Decision To Refund

CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION

Presentation Outline

Section 1	Why Consider a Refunding?
Section 2	How to Execute a Refunding
Section 3	Basic Refunding Issues -Economic and Legal Feasibility -Defeasance Escrow
Section 4	Advanced Topics in Refunding Analysis -Defeasance Escrow -Refunding Bond Structures

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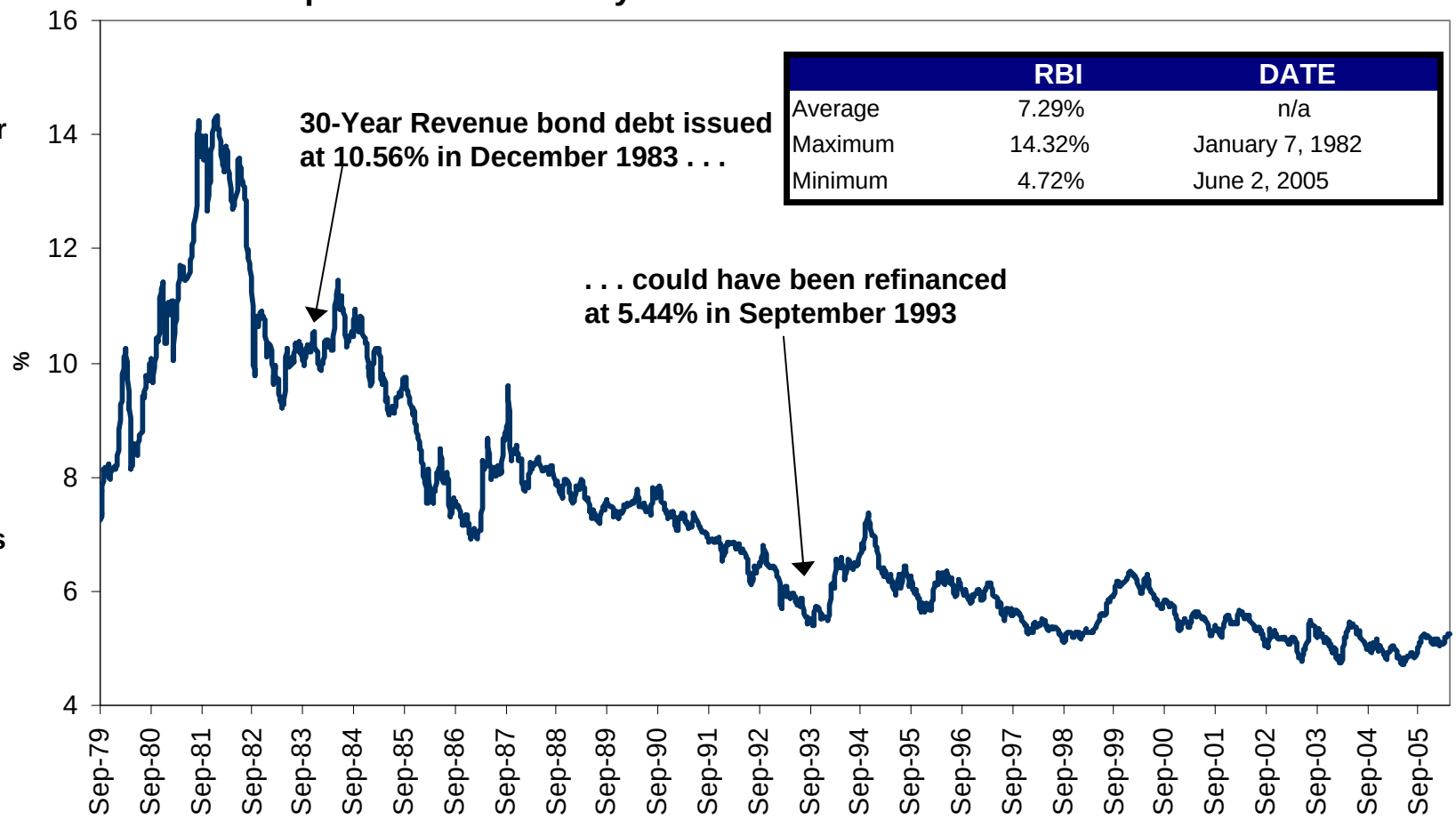
Why Consider a Refunding?

Most Common Reason Is Savings

- **A traditional "High-to-Low" refunding enables an issuer to save money today by refinancing prior debt issued at higher interest rates**
- **Conceptually analogous to refinancing a mortgage, but (slightly) more complex**
- **What level of savings is sufficiently attractive to undertake the refunding?**
- **Are there other objectives that can be achieved in addition to savings?**

Data from September 1979 to May 2006



	RBI	DATE
Average	7.29%	n/a
Maximum	14.32%	January 7, 1982
Minimum	4.72%	June 2, 2005

[2] The Revenue Bond Index (RBI) is based on 30-year bonds issued by 25 different revenue bond issuers for a variety of purposes including housing, transportation, hospitals and pollution control. The RBI is widely used as a benchmark for long-term revenue bonds

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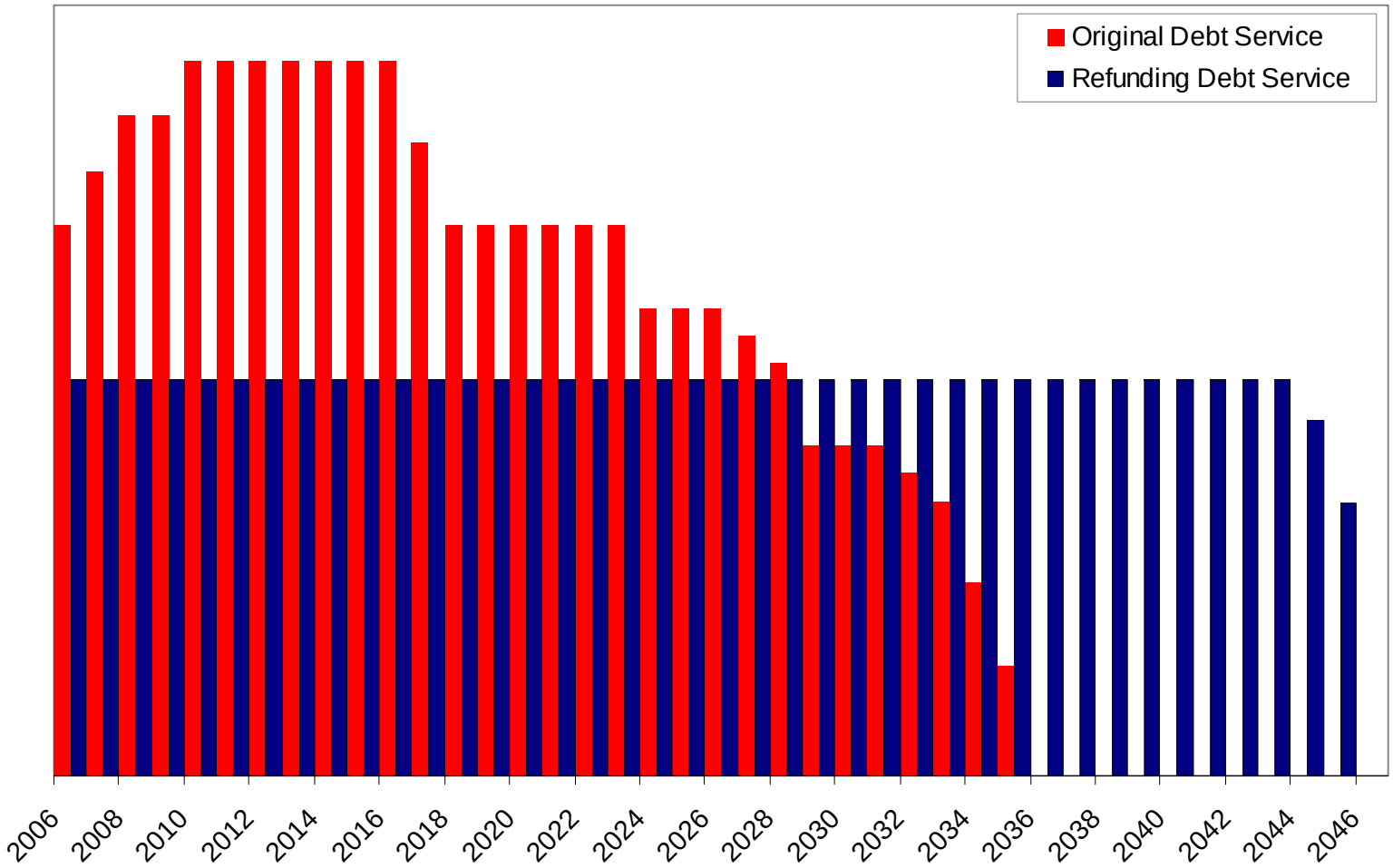
Debt Service "Re-Shaping"

- **Refunding / Restructuring for cash flow or budgetary management**
- **Reasons for "front-loaded" existing debt service may no longer control**
  - **Statutory or other legal constraints**
  - **Budgetary changes**
  - **Yield curve changes**
  - **Nuclear facility operating license extended**



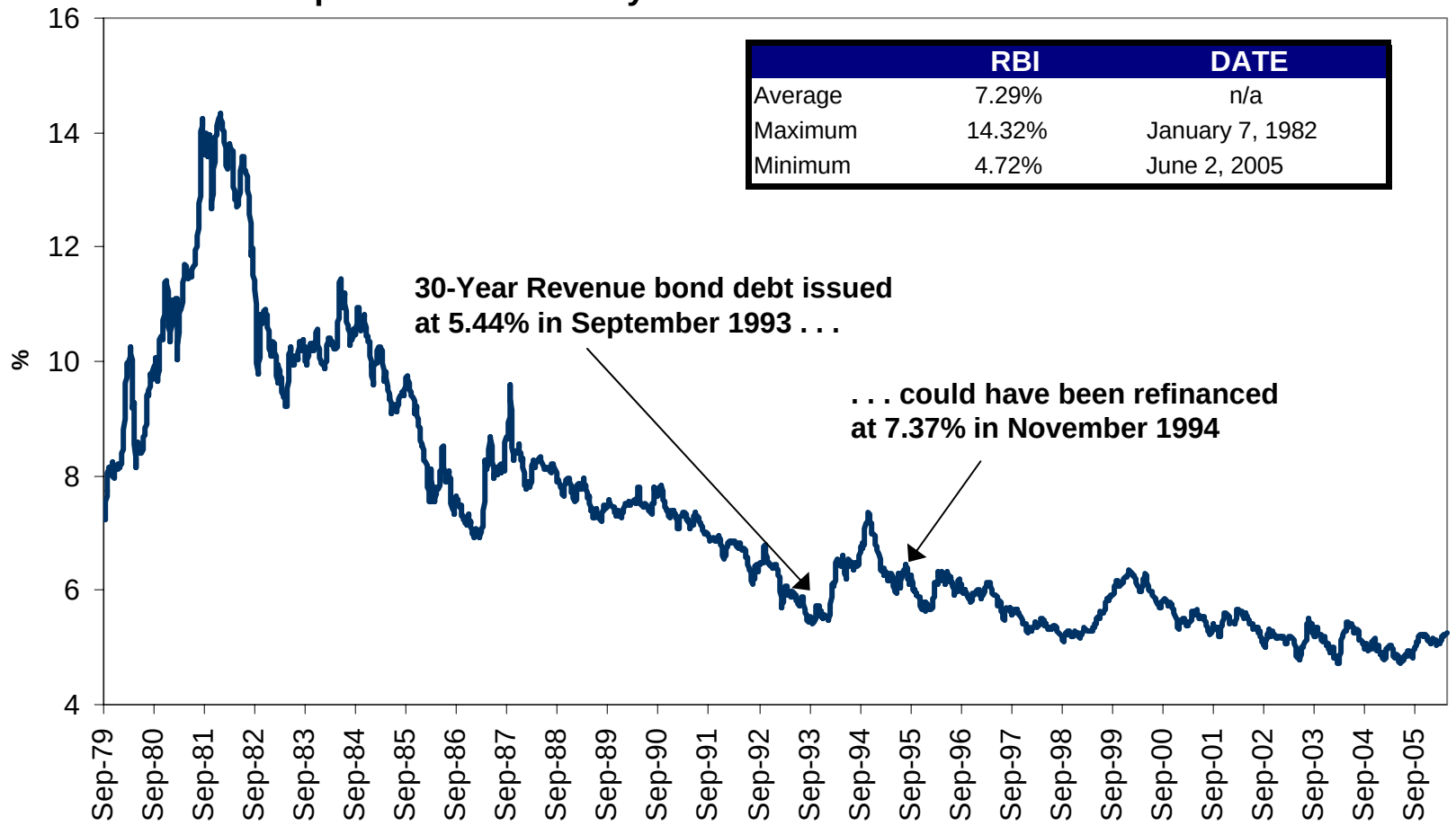
Document Re-Drafting

- Refundings provide opportunities to update indenture covenants
- May require defeasing all outstanding bonds
  - If too expensive, “springing” indentures
- Older indentures typically more restrictive and less flexible than “modern” versions
  - Assumptions for variable rate debt
  - Assumptions for derivative-related debt
  - Accommodating subordinate liens
  - Debt Service Reserve Fund Requirement
  - Accommodate derivatives
  - Payment dates that better match your cash flows
  - Flow of funds; valuation of accounts; releasing assets

"Low-to-High" Refunding

- **Restructurings sometimes have to be done in a "Low-to-High" refunding market environment**
- **If no negative arbitrage in refunding escrow, refund prior bonds to maturity.**
- **Generally, PV cost, or "dis-savings" limited to costs of issuance (~$70,000 per $10 million par)**
  - **Higher interest rates offset by (a) higher escrow investment rate and (b) higher PV discount rate,**
  - **Gross debt service can increase dramatically**
- **Non-callable bonds**

Data from September 1979 to May 2006



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Three Steps To Execution

- **Advance Refunding**
  - **Treasury's perspective**
  - **Practical effect is, simply, to make it more difficult**

- Sell new refunding bonds
  - Structurally, the new bonds typically mirror the structure of the outstanding bonds

- Use bond proceeds to buy securities whose receipts match defeasance requirements
  - If escrow is 90 days or less, it is defined as a "current refunding",
  - If escrow is more than 90 days, it is an "advance refunding"
  - Escrow reinvestment rate not to exceed the new bonds' arbitrage yield

- After closing, commence repayment on new refunding bonds

Sources and uses of sample refunding

Bond Sources:

Par Amount	$ 7,330,000.00
	7,330,000.00

Bond Uses:

Refunding Escrow Deposits:	
Escrow Cost	7,254,486.64
Delivery Date Expenses:	
Cost of Issuance	73,300.00
Other Uses of Funds:	
Rounding	2,213.36
	7,330,000.00

Assumes prior debt callable @102 on July 1, 2008, Refunding executed on July 1, 2006
Assumes cost of issuance = 1.00%; Escrow yield = arbitrage yield = 6.0000%

Escrow Cost Components

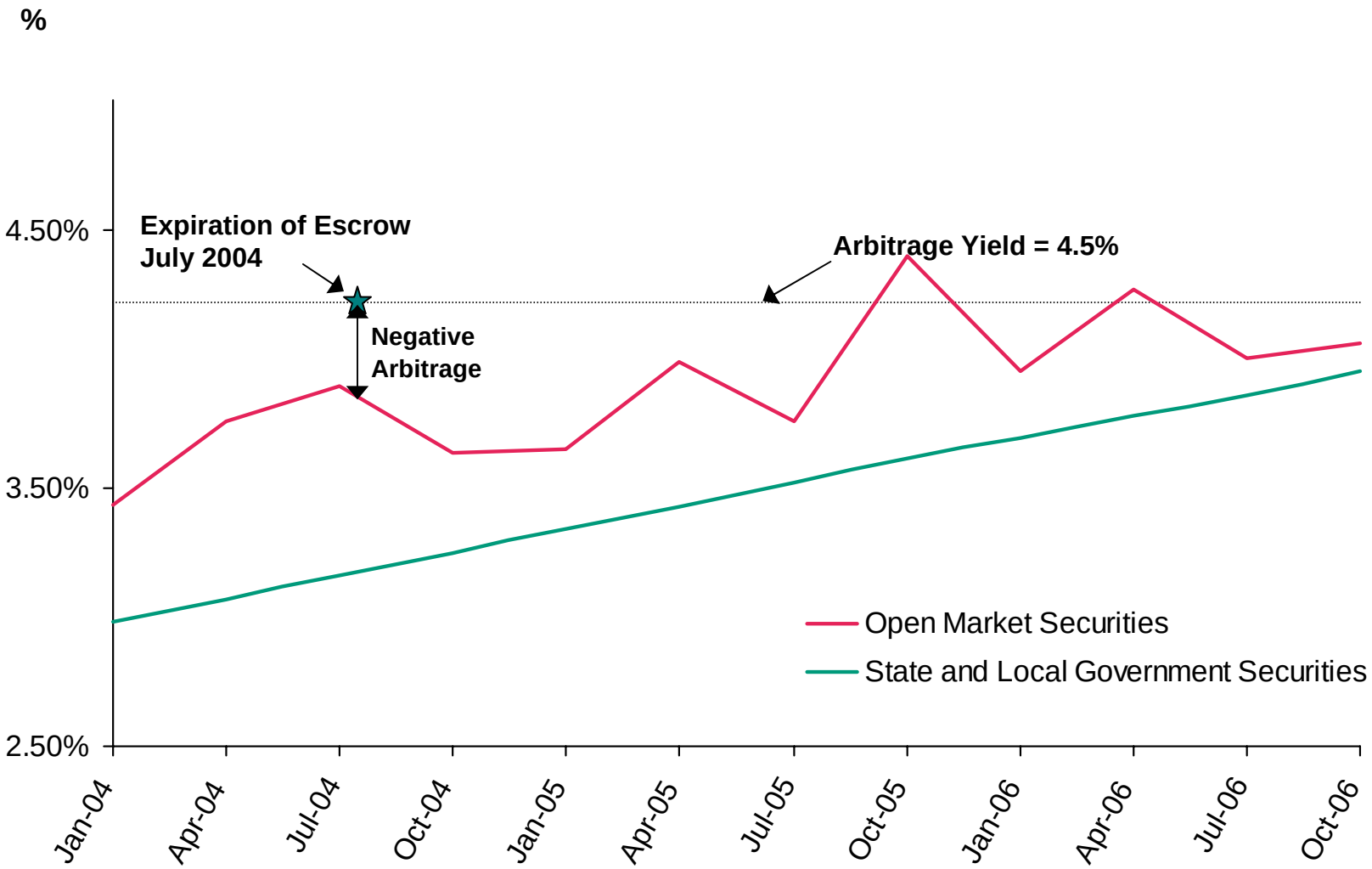
- **Prior coupon is 7.0%**
- **Present value costs discounted at the arbitrage yield to the Refunding Date**
- **This assumes no negative arbitrage – what if there is?**

Date	Interest Cost	Par Amount	Call	Present Value Cost
7/1/2006	245,000.00			237,864.08
7/1/2007	245,000.00			230,936.00
7/1/2008	245,000.00			224,209.71
7/1/2009	245,000.00	7,000,000.00	140,000.00	6,561,476.86
TOTALS	980,000.00	7,000,000.00	140,000.00	7,254,486.65

- Interest costs on prior bonds from the date the refunding is executed until the call date
  - Paid semi-annually, at each interest payment date
- Par amount of prior debt
  - Paid on call date
- Call premium (if any)
  - Paid on call date
- By purchasing a defeasance escrow for $7,254,486 today, the issuer eliminates responsibility for its prior bonds and at the same time takes responsibility for the debt service on the refunding bonds

Negative Arbitrage

- **Market yields earned on escrow deposits may not be able to equal the interest rate on the new bonds, defined as negative arbitrage**



Defeasance

- A defeasance is the termination of rights and interests of the bondholders and of their lien on the municipality's pledged revenues in accordance with the terms of the bond contract for an issue of securities.

- Defeasance usually occurs in connection with the refunding of an outstanding bond issue after provision has been made for future payment through funds provided by the issuance of a new series of bonds.

  – Deposit sufficient funds to a trustee, pursuant to an escrow agreement, to pay principal, interest and call premiums.

  – An issuer can also defease bonds with cash

Legal vs. Economic Defeasance

- **Definition of Defeasance Securities**

- Legal defeasance - the process by which debt may be eliminated for accounting purposes by depositing sufficient non-callable direct U.S. Treasury securities with a trustee pursuant to an irrevocable escrow agreement to pay all principal, interest, and call premiums (if any) as they become due on a bond issue
  - Debt may be removed from the balance sheet
- Economic defeasance - the process by which debt may be eliminated by depositing sufficient securities with a trustee pursuant to an irrevocable escrow agreement to pay all principal, interest, and call premiums (if any) as they become due on a bond issue
  - Debt must remain on the balance sheet
  - Credit quality of the escrow securities is important to rating agencies and investors
  - Typical investments include U.S. Agency float contracts, guaranteed investment contracts, and repurchase agreements

Refunding Opportunity Indicators

- **In reality, many factors.**
- **Public finance industry very good at finding refunding candidates**

- Interest rates on the prior bonds are 100+ basis points higher than the current market interest rate for the issuer's credit
- Prior bonds have at least 5 to 10 years between the final maturity and the first available call date
- Example:
  - Bonds issued on July 1, 1998 are callable on July 1, 2008 at 102% of the par amount
  - Callable bonds have $1,000,000 par amounts due July 1 2009 - 2018
  - Coupons for each maturity are 7.00%
  - Current market interest rates would allow new bonds to be sold with 6.00% interest rates

Economic Savings Drivers

- **Lower interest rates and time between the call date and maturity drive savings economics**
- **Because present value savings for the 2007-2009 maturities are negative, the issuer would typically refund only bonds maturing beyond 2009**

Date	Par Amount	Current Coupon	Refunding Coupon	Present Value Benefit
2,007	1,000,000	7.00%	6.00%	(19,738)
2,008	1,000,000	7.00%	6.00%	(11,725)
2,009	1,000,000	7.00%	6.00%	(4,172)
2,010	1,000,000	7.00%	6.00%	2,947
2,011	1,000,000	7.00%	6.00%	9,657
2,012	1,000,000	7.00%	6.00%	15,982
2,013	1,000,000	7.00%	6.00%	21,944
2,014	1,000,000	7.00%	6.00%	27,564
2,015	1,000,000	7.00%	6.00%	32,861
2,016	1,000,000	7.00%	6.00%	37,854
TOTALS	**10,000,000**			**113,174**

Refunding Debt Service

- **Savings "Structures" can be Level**
  - **Front-end**
  - **Back-end**
  - **Targeted Relief**
  - **Wrap existing debt**
- **"Net" Savings**

Year Ending July 1	Prior Debt Service	Refunding Debt Service	Savings	Present Value Savings
2,007	490,000	474,800	15,200	15,200
2,008	490,000	472,700	17,300	17,300
2,009	490,000	475,600	14,400	14,400
2,010	490,000	473,200	16,800	16,800
2,011	490,000	470,800	19,200	19,200
2,012	1,490,000	1,473,400	16,600	16,600
2,013	1,420,000	1,400,700	19,300	19,300
2,014	1,350,000	1,333,600	16,400	16,400
2,015	1,280,000	1,261,800	18,200	18,200
2,016	1,210,000	1,190,600	19,400	19,400
2,017	1,140,000	1,125,000	15,000	15,000
2,018	1,070,000	1,054,700	15,300	15,300
TOTALS	**11,410,000**	**11,206,900**	**203,100**	**203,100**

Present Value Savings

- Present value is a tool for making decisions today
- Present value savings are calculated by discounting, at an agreed upon interest rate, the difference between the prior bond's and the refunding bond's debt service payments
- The discount rate is typically based on the arbitrage yield of the refunding bonds, although the true interest cost (TIC) or another mutually agreed upon rate can be used
- Appropriate discount rate?
  - Should it change as rates fall?

Is A Refunding Worth Pursuing?

- **Example Refunding Savings targets:**
  - **3% for Current**
  - **5% for Advance**
  - **7% for Synthetic**
- **Persuasive?**

- **Call option value**
  - **Time remaining**
  - **"probability" of better outcome later**
  - **Volatility**

  - **7% savings at 25% of call option value good deal?**

- The most common method to gauge savings from a refunding is to look at the present value savings as a percentage of bonds refunded
  - Benchmarks serve as a policy guideline, but other considerations, such as budgetary, document changes, and/or administrative matters, may influence the decision

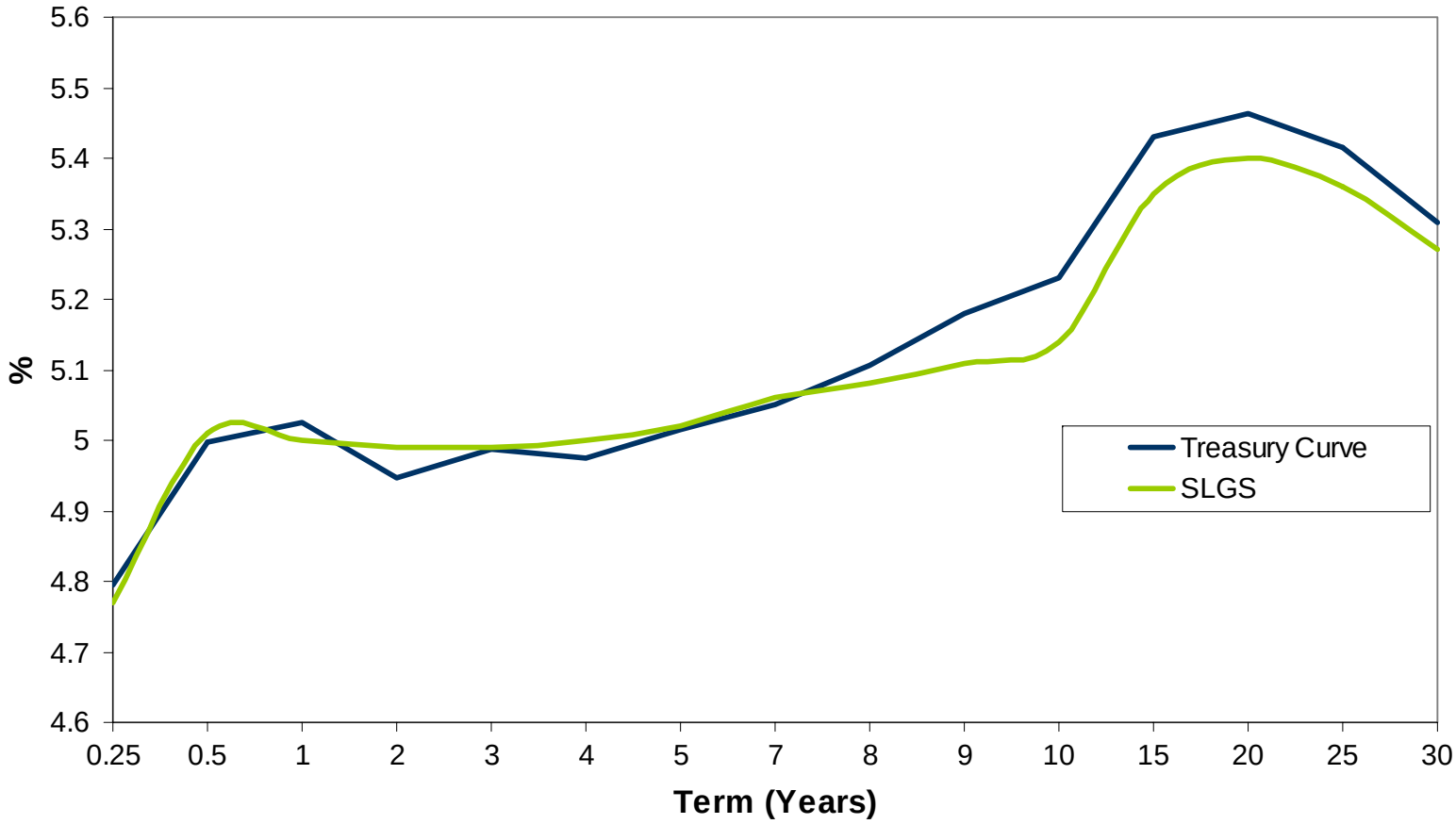
- The call value option model enables valuation of a specific bond's call option
  - Issuers might want present value savings to be greater than a certain defined percentage of the call option's value

  - Valuations of call options are complicated, utilizing the Black-Sholes model of option valuation

Optimizing Escrow Defeasance

Rates as of May 17, 2006.

- **Creating an optimal defeasance escrow: State and Local Government Securities (SLGS) versus Open Market Securities**



Other Defeasance Escrow Issues

- Transferred Proceeds Yield Adjustments
- Verification Agent
- Tax / Non-arbitrage Certificate

Escrow Treatment Of Unspent Prior Bond Proceeds

- Prior bond proceeds are yield restricted to the prior bond's arbitrage yield, which is typically higher than refunding yield
- Short-term proceeds of prior bond issues are required to be spent first
  - Construction Fund
  - Capitalized Interest Fund
- Longer-term monies can be spent pro-rata with bond proceeds
  - Debt Service Reserve Fund

Forward Refunding with Swap

- **Non-advance refundable bonds**
- **Negative arbitrage concerns**
- **On the bonds call date Issuer would pay or receive a swap termination payment:**
  - **If future rates are higher Issuer will receive a swap payment to offset its higher fixed rate bond costs**
  - **If future rates are lower, Issuer will pay the swap provider but save on its fixed rate loan costs**

Time-Line